Federal Aviation Administration (FAA)

# Pre-Brief for June 13, 2001 Testimony

**June 6, 2001**

# Purpose

- Provide brief update of activities since our last visit
- Describe material upon which the June 13, 2001 testimony is based

  Question 1. STARS integrated deployment schedule and cost
    - FY02 through FY04
      - Including facilities and ASR-11

  Question 2. Training strategy for System Specialists & Controllers

  Question 3. Contingency Plans
    - STARS and/or ASR-11 project slippage
- Introduce the FAA approach to a performance based organization
  - Shift from project-based viewpoint to a service-based understanding

# STARS Program Update

- Vast majority of the software that will be needed for a national deployment of the Full STARS product has been developed
  - Major risk of software development is mostly behind us
- Key remaining risk is efficiently deploying the system
  - 173 FAA facilities and 102 DOD facilities
- Formal system testing of Full STARS 1 (FS-1), which contains 80% of the Air Traffic human factors changes and 100% of the Airways Facilities changes
  - Completed first phase on May 17th, with excellent results, passing 95% of its requirements

# Cost & Schedule for Deploying STARS

- Question answered by considering all activities necessary to make capability operational
  - Facility work required
  - Surveillance work required
  - Training necessary for controllers and systems specialists
- Integrated schedule produced to show necessary activities and their associated costs
  - High level schedule is provided today
- Based on review, only cost increase is projected in automation deployment activities
  - Next chart provides a history of STARS costs

# STARS Automation Cost History

| | | |
|---|---|---|
| Original baseline | 1996 | $940.2M |
| Revised baseline[1] | 10/1999 | $1,402.6M |

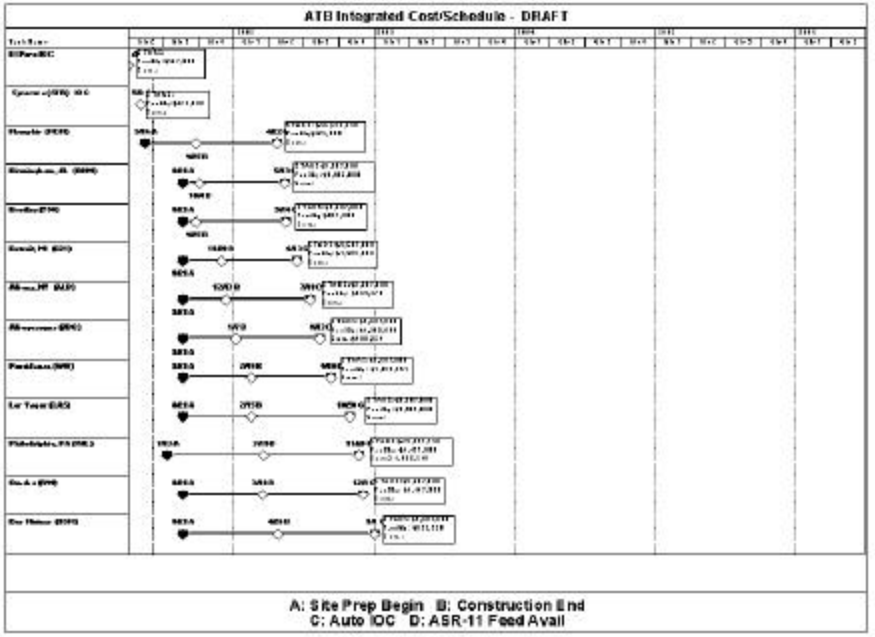
| | | |
|---|---|---|
| Estimate increase[2] | 4/2001 | $236M |
| Revised estimate increase | 6/2001 | $170.9M |

Notes:
1 Total cost for all sites. Increase focused on development increases. Development costs now under control.
2 Increase focused on deployment and implementation.

# STARS Integrated Schedule and Cost

FY02-FY04

- Integrated schedule for first 67 STARS sites provided
  - 2 FY00 sites, 1 FY01 sites, 10 FY02 site, 19 FY03 sites, 35 FY04 sites
  - Schedules include:
    - STARS
    - Facilities
    - Surveillance
  - Cost provided by site



# Integrated Costs for First 67 STARS Sites

## Automation - FY02-FY04

| | Budgeted | Out year Spend[1] | Sub total | Cost to Complete | Potential Increase Needed[2] |
|---|---|---|---|---|---|
| **FY02** | 173.4 | 17.2 | **156.2** | **170.7** | **14.5**[3] |
| **FY03** | 123.5 | 31.3 | **92.2** | **123.8** | **31.6** |
| **FY04** | 105.1 | 80.3 | **25.1** | **58.6** | **33.5** |
| **Total** | 402.3 | 128.8 | **273.5** | **353.1** | **79.6**[4] |

Notes:
1. Money spent during FY02-FY04 for sites deployed in FY05 and beyond
2. Site specific deployment cost increase including adaptation and support costs
3. Any required increase will be handled internal to FAA
4. Total increase in deployment and implementation costs include: $16.5 for FY01, $79.6M for FY02-04, and $74.8M for FY05 and beyond for a total of $170.9M (from slide 4)

# Training Strategy

- System Specialist Training
  - Sites choose one of two options
    - On-site training
    - Academy training
    - Training material complete
  - Training schedule included site schedule
  - Funding for training included in site automation costs
- Controller Training
  - Not yet completed for Full Service STARS
    - Assumption: Not significantly different from existing training

# Contingency Plans

## Project Assessment

- STARS
  - Project currently on schedule
    - Validated by independent Mitre assessment
  - Contingency plan developed to accommodate up to 6 month slip
- ASR-11
  - Project currently experiencing difficulty
  - 2 contingency plans have been developed
    - Accommodate up to 1 year slip
    - Long-term delay of ASR-11 project

# STARS Assessment*
## Independent Mitre Red Team

- Assessment Objectives:
  - Assess Raytheon schedule for remaining software development
  - Assess schedule risk for software testing
- Risk Assessment
  - Low risk in resource availability, software integration, and resolution strategies for identified problems
  - Medium risk in availability of key engineers
- Conclusions and Recommendations
  - Some contention for engineers likely
    - Monitor problem discovery and resolution rates
    - Exercise care in timing to limit contention

* Assessment completed 31 May 2001

# Contingency Plans - Available Options

| STARS \ ASR-11 | On time | Up to 1 year slip | Long-Term Delay for ASR-11 |
|---|---|---|---|
| **On time** | No contingency required | Procure limited number of radar digitizers | 1. Modify STARS to accept analog data (necessary at ARTS IIE sites only)<br>2. Upgrade ASR-8s to provide digital format and acquire digitizers for ASR-7s<br>3. Procure new radar<br>4. Create National digitizer program |
| **Up to 6 month slip** | 1. Acquire 4 additional ARTS IIIE systems<br>- New TRACONs<br>- Performance/capacity<br>- Decision date: 12/01 | 1. Acquire 4 additional ARTS IIIE systems<br>- New TRACONs<br>- Performance/capacity<br>- Decision date: 12/01<br>2. Procure limited number of radar digitizers | 1. Modify STARS to accept analog data (necessary at ARTS IIE sites only)<br>2. Upgrade ASR-8s to provide digital format and acquire digitizers for ASR-7s<br>3. Procure new radar<br>4. Create National digitizer program<br>5. Acquire 4 additional ARTS IIIE systems |

# Performance Based Organization

- Challenge is achieving a balance between maintaining current services and evolving to future services
  - Necessary investments in continuing current capability versus responsible investment in modernization
- Terminal Business Service (ATB) is first instantiation of FAA Performance Based organization
  - Combines elements of operations and acquisition
  - Provides mechanism to implement Operational Evolution Plan (OEP)

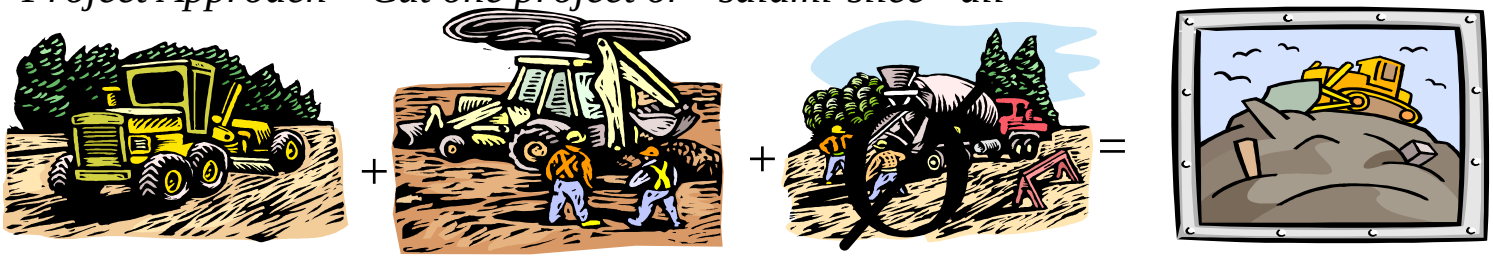
# Terminal Business Service (ATB)

- Mission: Provision of integrated terminal air traffic control capabilities
  - Initially to include: terminal automation, facilities, surveillance programs
  - Expand to include other terminal programs
- Purpose:
  - Address agency performance issues
  - Make better use of scarce resources
  - Put terminal programs on firm business footing
  - Provide single point of accountability

# Managing by Product vs. Service

**<u>Requirement</u>**: Build 2 new Airport Arrival Terminals
**<u>Problem</u>**: Need to cut projected spending due to budget shortfall

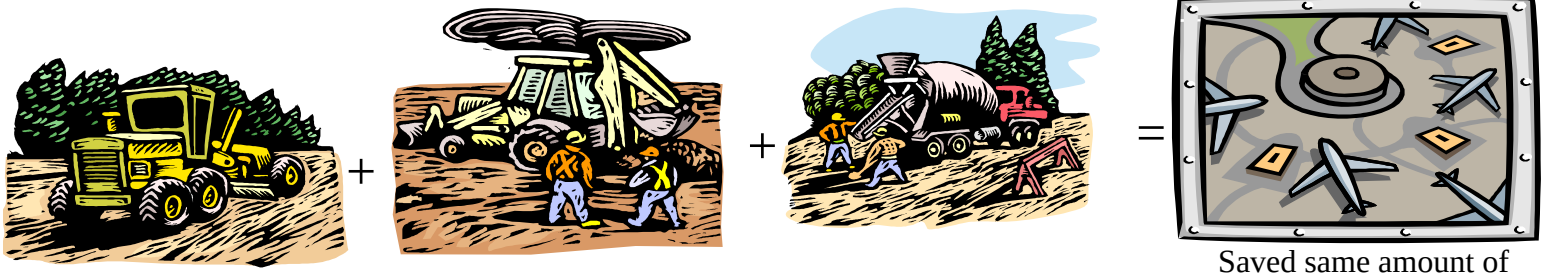
*Project Approach – Cut one project or "salami-slice" all*



$$$ + $$$ + ~~$$$~~ =

Saved money but didn't finish anything

*Service Approach – Finish one Terminal and defer other*

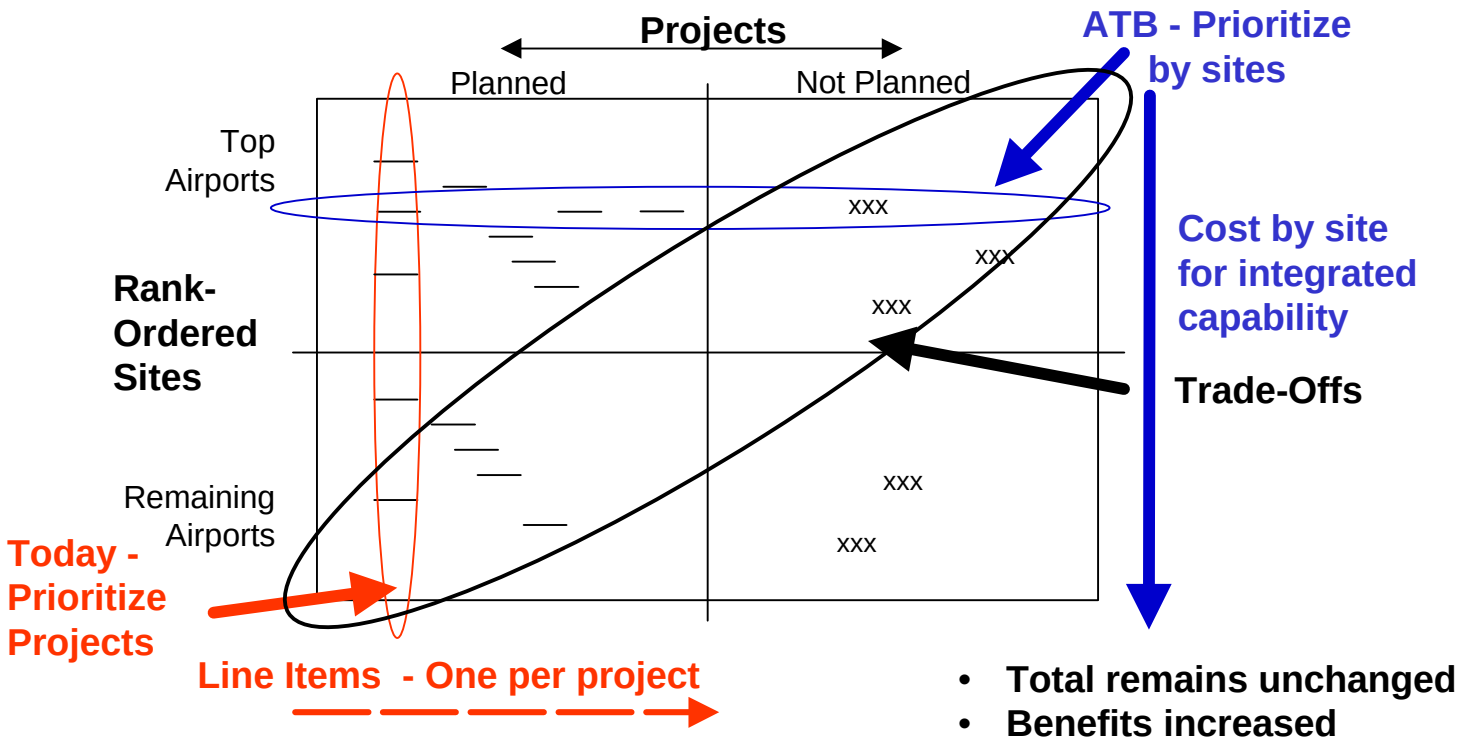


$$ + $$ + $$ =

Saved same amount of money, finished one New Terminal

# Redefine Trade-Off Discussions

## Trade-off complete capabilities at sites to support balanced business objectives




- **Total remains unchanged**
- **Benefits increased**

# ATB Balanced Scorecard

## Balanced scorecard focuses on business objectives

| Customer Focus (external focus) | Financial Focus |
|---|---|
| Service today and service tomorrow<br>Existing and new benefits<br>Architecture vision,<br>Efficiency, safety, security, flexibility, capacity, and availability | Cost of ownership<br>Return on investment<br>Ease of growth<br>Lifecycle cost<br>Cash flow/expenditure profile |
| People in work environment<br>Capability of ATB workforce<br><br>Learning and Growth Focus | Process efficiency<br>Effectiveness of work environment<br>Ease of use<br>Support processes<br>Maintainability<br>Maintainability of ATB integrated capabilities<br><br>Internal Focus |

# Comparison of Activities

- Before PBO
  - By project
  - Cost/benefit
    - New benefits only
  - Reductions taken across all (or mostly all) projects by percent
  - HQ-centric
  - Personality driven
- After PBO
  - By capability at a site
  - Return on Investment
    - Including cost of ownership
  - Reductions taken by integrated capability by site
  - Service-centric
  - Risk to service today and in the future

# Conclusion

- Potential deployment cost increase of $170.9M
  - FY02-FY04 projected increase of $79.6M
- Training strategies have been agreed to for system specialists and controllers
  - System Specialist training available at either the Academy or the site
  - Controller training still being developed for Full Service STARS
    - Builds on existing training strategies
- Contingency plans highlight a 12/01 decision timeframe
  - Potentially acquire 4 Common ARTS solutions as a back-up strategy